

Abstract

The invention relates to a catalyst and a process for the autothermal, catalytic steam reforming of hydrocarbons using the catalyst. The catalyst has a multilayer structure and comprises a lower catalyst layer located directly on a support body and an upper catalyst layer located on the lower catalyst layer, with the lower catalyst layer preferentially catalysing the partial oxidation and the upper catalyst layer preferentially catalysing steam reforming. In a further embodiment, a three-layer catalyst having a further catalyst layer for the carbon monoxide conversion (water gas shift reaction) is described. Each catalyst layer comprises at least one platinum group metal on an oxidic support material.

The steam reforming process is carried out in an adiabatic process by passing a feed mixture of hydrocarbons, oxygen and water or water vapour which has been heated to a preheating temperature over the multilayer catalyst.

Catalyst and process are used for producing hydrogen-containing fuel gases in reformer systems, preferably for fuel cells.